ANCILLARY SCIENTISTS SYMPOSIUM: CONSERVATION OF AVIAN GENETIC RESOURCES: CURRENT OPPORTUNITIES AND CHALLENGES

Introduction[1]

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Key words: conservation, poultry, germ plasm, cryopreservation, genetic stocks

2006 Poultry Science 85:198–199

The chicken genome sequencing project has opened new research opportunities in host-pathogen interactions, food safety and quality, developmental biology, and biomedical sciences (Alper, 2003; Burt and Pourquie, 2003; International Chicken Genome Sequencing Consortium, 2004; International Chicken Polymorphism Map Consortium, 2004; Mozdziak and Petitte, 2004; Wallis et al., 2004). Such genomic empowerment was made possible by earlier discoveries that clearly linked a particular genetic make-up (haplotype) with disease resistance, growth, and egg quality and production. The post-genome sequencing era promises to be even more exciting in terms of narrowing the genetic control from a larger region on the genome to a single gene or even to a single nucleotide. However, these future research and discovery efforts will require the continuous availability of valuable resource poultry populations.

During the past few years, avian genetic stocks, in particular chicken lines, have been eliminated or are at risk for being elimination by various institutions and companies largely because of budget-related downsizing. This would adversely impact future genomics research efforts, which require the availability of genetic diversity in linking genome sequences with phenotypes that are of both academic and economic interest. Such concerns have been expressed in recent months by the academic and industry scientific communities in the form of several publications (Fulton and Delany, 2003; Miller, 2004).

The 2005 Poultry Science Association's Ancillary Scientists Symposium was planned to address the topic of "Conservation of Avian Genetic Resources: Current Opportunities and Challenges." The idea was to gather world's leading experts in poultry and allied biomedical sciences and industry to address topics related to historical and contemporary needs of genetic conservation. The symposium program was developed by a dedicated team of scientists representing academia, industry, and federal partners. It was decided to have an overarching keynote address to set the theme and to identify broader issues related to genetic conservation. It was considered important to establish what the current status of genetic conservation efforts is both in the United States and globally, especially in Europe. Other scientific sessions should address academia and industry perspectives, available technology and its use, and lessons learned from genomics, biomedical, and other model systems that may help understand the need, urgency, and processes involved in genetic conservation of poultry. The program was designed to provide ample time for discussions, which were to be moderated by expert panelists at the end of each scientific session. The expected outcome of this symposium was to develop recommendations for the "next steps" needed to achieve both short- and long-term capability by which important poultry genetic resources can be conserved.

ACKNOWLEDGMENTS

The Ancillary Scientists Symposium Committee is very grateful to the following companies for their support: Aviagen, Cobb, Cargill, Embrex, Hy-Line International, Perdue, and CSREES/USDA.

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Received August 24, 2005.

Accepted September 10, 2005.

[1]Paper for the Poultry Science Association Ancillary Scientists Symposium, July 31, 2005, Auburn, Alabama, "Conservation of Avian Genetic Resources: Current Opportunities and Challenges," organized by Muquarrab Qureshi.

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